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a field trial in Danish dairy herds**

Nielsen, Liza Rosenbaum; Nielsen, Søren Saxmose

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# Intervention against *Salmonella* Dublin - a field trial in Danish dairy herds



Liza Rosenbaum Nielsen\* and Søren Saxmose Nielsen

\* lrn@life.ku.dk

## Objective

To assess an approach to eradicate *Salmonella* Dublin from dairy herds based on a step-wise procedure provided in a manual

### Steps

1. Risk scoring to identify open transmission routes within the herd
2. Establish an action plan
3. Perform management changes to close important routes of infection
4. Diagnostic testing to evaluate progress of intervention procedures
5. Interpreting repeated testing to detect individual high-risk animals for special hygienic management or culling
6. Evaluation of the effect of intervention actions on within-herd prevalence



To eradicate was defined as reducing the prevalence to very low levels (below 5% seropositive animals) and reaching a point with permanently discontinued transmission of infection between animals.

## Materials and Methods

11 dairy herds (herd size range: 67 to 320 cows)

Herd *Salmonella*-status evaluated by:

- Herd classification based on national surveillance program testing of bulk tank milk (Level 1 indicates most likely free from *S. Dublin*)
- Bulk tank milk antibody measurements over time
- Seroprevalence evaluation over time by repeated measurement of antibody levels in all individual animals in the herds



## Results and Conclusions

**11 dairy herds all managed to reach Level 1** (= most likely free from *Salmonella* Dublin). Large variations in how long it took. Estimated mean time herds performed intervention actions directed against transmission of *Salmonella* Dublin before reaching Level 1 in the surveillance program: **26 months** (st.dev.: 18 months).

Mean time from initiation of intervention actions to apparent prevalence in young stock <5%: **12 months** (st.dev.: 13 months).

### Example of intervention actions and results

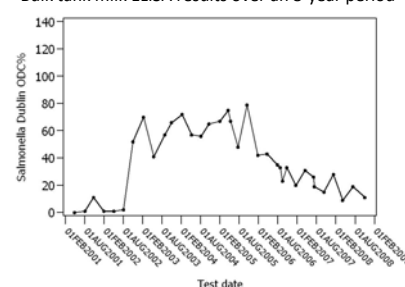
#### Case

- Entered project in Fall 2003
- Holstein-Friesian, 201 cows at end of study in Dec. 2006
- Pre-weaning calf pens cleaned between each calf.
- Discontinued use of high-pressure cleaning indoors from November 2004.
- All-in-all-out for all common calf sections.
- Strict management and use of colostrum-bank
- Common calving area split into "high and low risk areas"
- Culling of persistently high titre animals late in intervention.

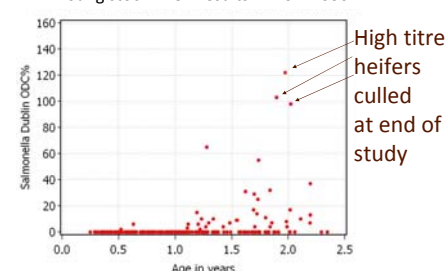
**Results** : 20 months from Nov. 2004 to reaching Level 1. Young stock prevalence below 5% after 24 months. Calf-mortality reduced from 9% to 3% in same period. In this herd repeated evaluations first showed that actions were not working but new intervention actions from Nov. 2004 clearly worked.



Bulk tank milk ELISA results over an 8-year period



Young stock ELISA results in Nov. 2006



**In conclusion, eradication of *Salmonella* Dublin from dairy herds is feasible but takes time.**

**Management changes are necessary and systematic approaches can be supported by management tools.**

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